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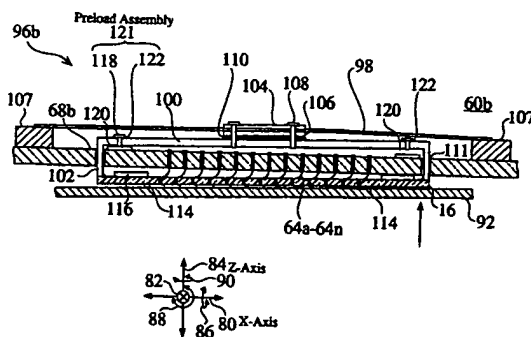
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(54) Title: CONSTRUCTION STRUCTURES AND MANUFACTURING PROCESSES FOR INTEGRATED CIRCUIT WAFER
PROBE CARD ASSEMBLIES



(57) Abstract: Several embodiments of integrated circuit probe card assemblies are disclosed, which extend the mechanical compli-
ance of both MEMS and thin-film fabricated probes, such that these types of spring probes structures can be used to test one or more
integrated circuits on a semiconductor wafer. Several embodiments of probe card assemblies, which provide tight signal pad pitch
compliance and/or enable high levels of parallel testing in commercial wafer probing equipment, are disclosed. In some preferred
embodiments, the probe card assembly structures include separable standard components, which reduce assembly manufacturing
cost and manufacturing time. These structures and assemblies enable high speed testing in wafer form. The probes also have built in
mechanical protection for both the integrated circuits and the MEMS or thin film fabricated spring tips and probe layout structures
on substrates. Interleaved spring probe tip designs are defined which allow multiple probe contacts on very small integrated circuit
pads. The shapes of probe tips are preferably defined to control the depth of probe tip penetration between a probe spring and a
pad or trace on an integrated circuit device. Improved protective coating techniques for spring probes are also disclosed, offering
increased reliability and extended useful service lives for probe card assemblies.

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